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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,992

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Dennis Nielsen

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EXAMINER

STELLING, LUCAS A

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,992	<b>Applicant(s)</b> NIELSEN, DENNIS	
	<b>Examiner</b> LUCAS STELLING	<b>Art Unit</b> 4151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2006 and 03 April 2006 and 14.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 33-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/3/2006 and 8/4/2006</u> .                                   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 36, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 36 is an Markush-style claim, using the open ended transition word "comprising," which is indefinite. See MPEP 2173.05(h). The term "other compounds" is indefinite because a person of ordinary skill would not know which "other compounds" are intended. And, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
4. Claim 42 is indefinite because a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b)

Art Unit: 4151

a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 42 recites a broad recitation of a range, and then also recites “preferably... more preferred” which contains narrower statements of the range. See, especially, MPEP 2173.05(c)(I). It will be interpreted for purposes of examination that the broadest range or limitation was intended.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 33, 34, 35, 37, 38, 40 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent No. 1,567,773 to Welwyn Hall Research Associates (“Welwyn”).

Art Unit: 4151

8. As to claim 33, Welwyn teaches a method of treating waste matter from animals **(Welwyn title)**, the method comprising:
9. collecting waste matter from the animals **(Welwyn page 2 lines 115-116)**;
10. inhibiting urease activity from said collected waste matter **(Welwyn page 2 lines 35-40 and page 70-85)**; and
11. separating said urease-activity inhibited waste mater into a urea-rich fraction essentially consisting of a liquid comprising urea and other components soluble in liquid manure and a urea-lean fraction **(Welwyn page 3 lines 20-50; floor is treated with alkali inhibitor, thus treated urea-rich fraction flows to a tank, leaving behind urea-lean fraction – the dung)**;
12. Welwyn does not explicitly teach reversible inhibition of urease in the method described. However, Welwyn teaches that contact between the urea rich fraction and the urea-lean fraction should be minimized to limit exposure of the urea in the urine to the urease in the dung portion in order to limit conversion of the urea **(Welwyn page 3 lines 40-45)**. Further, Welwyn teaches that the amount of acceptable contact is about 30 minutes in normal hot weather, but that temperature is a result effective variable which controls the rate of urea decomposition in the presence of urease **(Welwyn page 3 lines 94-100)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to reversibly inhibit urease activity by lowering the temperature in the contact zone in order to limit the amount of urea which is converted to ammonia.

Art Unit: 4151

13. As to claim 34, Welwyn teaches that the inhibition step comprises irreversibly inhibiting urease activity (**Welwyn page 2 lines 55-80; it is noted that lime treatment is irreversible because raising the pH to at least 11 is sufficient to denature the urease enzyme**).

14. As to claim 35, Welwyn suggests the use of temperature controlled reversible inhibition in order to limit conversion of urea, as discussed above for claim 33.

15. As to claim 37, Welwyn teaches the method of claim 33, and in Welwyn, the method comprises:

reversibly inhibiting urea activity in said collected waste matter (**Welwyn page 3 lines 40-45; and page 3 lines 94-100; and see discussion above about temperature controlled inhibition for claim 33**);

separating said reversibly urease-activity inhibited waste matter into a urea-rich fraction and a urea-lean fraction (**Welwyn page 3 lines 20-50; urea-rich fraction flows to a tank, leaving behind urea-lean fraction – the dung**); and

irreversibly inhibiting urease activity in said urea-rich fraction(**Welwyn page 2 lines 55-80; it is noted that lime treatment is irreversible because raising the pH to at least 11 is sufficient to denature the urease enzyme**).

16. As to claim 38, Welwyn teaches the method of claim 37, wherein the urea-lean fraction is in form of a liquid, solid, or a combination thereof (**Welwyn page 2 lines 35-40, the urea-lean fraction is dung which is a combination of solid and liquids**).

Art Unit: 4151

17. As to claim 40, Welwyn teaches the method of claim 33, wherein the waste-matter comprises feces and liquid manure from farm animals (**Welwyn title**).

18. As to claim 47, Welwyn suggests the use of temperature controlled reversible inhibition in order to limit conversion of urea, as discussed above for claim 33 on which claim 34 depends.

19. Claims 36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn in view of U.S. Patent No. 3,644,442 to Wilson et al. ("Wilson").

20. As to claim 36, Welwyn teaches the method of claim 34, but teaches lime as the urease inhibitor and is silent as to the use of other inhibitors. Wilson teaches the use of EDTA and hydroxamic acid as urease inhibitors (**Wilson col. 2 lines 30-50**). Wilson teaches that the use of EDTA inhibits the conversion of urea without impairing the digestion of cellulose when the urea supplement is fed to ruminants (**Wilson col. 2 lines 30-50**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to substitute EDTA and hydroxamic acid for lime as the inhibitor in the method of Welwyn in order to inhibit the urease in the urea fraction without substantially raising the pH of the fraction, and without impairing cellulose digestion in ruminants when the fraction is used as a feed supplement.

21. As to claim 39, Welwyn as modified by Wilson teaches the method of claim 36. Wilson teaches that the urease inhibitors must be added in such a

Art Unit: 4151

quantity as to inhibit the urease enzyme but also to provide a dosage which is harmless to the animal (**Wilson col. 2 lines 15-20**). It is within the skill of a person of ordinary skill in the art to remove excess inhibitors in order to ensure a safe dosage of hydroxamic acid or EDTA is provided to the animal. Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to include the step of recovering the inhibitor from the urea-rich fraction of in the method of Welwyn as modified by Wilson in order to ensure that a safe dosage of the inhibitor chemical is delivered to the animal.

22. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

23. Claims 41-44, and 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Welwyn.

As to claims 41-44 and 48, Welwyn teaches a urea-rich fraction which has substantially no urease activity (**Welwyn, the urine is separated off from the dung fraction, page 3 lines 20-50, especially lines 35-40**), has minor residues of irreversible urease-activity inhibitors (**Welwyn, page 3 lines 30-40, the urine fraction will inherently contain the lime inhibitor based on contact with the lime flushed channel**) , and comprises animal waste-matter indicators (**Welwyn**



Art Unit: 4151

**col. 20-50, the fractions are produced from animal dung and urine; because no purification or removal step is taught, the product will inherently contain animal waste-matter indicators).**

The Court of Customs and Patent Appeals (CCPA) explicitly approved the 102/103 rejection of a product-by process claim ( In re Brown, 173 USPQ 685 (CCPA 1972)), over the reference which showed the product, which appeared to be identical or only slightly different from the claimed product.

Because of the nature of product-by-process claims the Examiner cannot ordinarily focus on the precise difference between the claimed product and the disclosed product. IT is then Applicants' burden to prove that an unobvious difference exists. See In re Marosi, 218 USPQ 289,292-293 (CAFC 1983)

24. Claim 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn in view of U.S. Patent No. 4,349,572 to Larson et al. ("Larson").

25. As to claim 45, Welwyn teaches a method of treating waste matter from animals comprising:

collecting waste matter from the animals **(Welwyn page 2 lines 115-116);**

inhibiting urease activity from said collected waste matter **(Welwyn page 2 lines 35-40 and page 70-85);** and

separating said urease-activity inhibited waste mater into a urea-rich fraction essentially consisting of a liquid comprising urea and other components soluble in liquid manure and a urea-lean fraction **(Welwyn page 3 lines 20-50;**

**floor is treated with alkali inhibitor, thus treated urea-rich fraction flows to a tank, leaving behind urea-lean fraction – the dung);**

26. Welwyn is different from claim 45 in that it does not explicitly teach reversible inhibition of urease in the as claimed, and it does not teach reacting the urea-rich fraction with methanal. However, Welwyn teaches that contact between the urea rich fraction and the urea-lean fraction should be minimized to limit exposure of the urea in the urine to the urease in the dung portion in order to limit conversion of the urea (**Welwyn page 3 lines 40-45**). Further, Welwyn teaches that the amount of acceptable contact is about 30 minutes in normal hot weather, but that temperature is a result effective variable which controls the rate of urea decomposition in the presence of urease (**Welwyn page 3 lines 94-100**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to reversibly inhibit urease activity by lowering the temperature in the contact zone in order to limit the amount of urea which is converted to ammonia.

27. As to the step of contacting the urea-rich fraction with methanal, Larson teaches contacting livestock excreta with formaldehyde solution (**Larson abstract**). Larson teaches that contacting the excreta with formaldehyde destroys pathogenic fecal microbes and prevents mold growth (**Larson col. 2 lines 40-45**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to produce urea-formaldehyde from the urea rich fraction by contacting the fraction with formaldehyde in order to destroy pathogenic fecal microbes and prevent mold growth.

Art Unit: 4151

28. As to claim 46, both Welwyn and Larson are drawn to waste-matter comprising feces and manure from farm animals (**Welwyn title, Larson title**).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUCAS STELLING whose telephone number is (571)270-3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 4151

Las

/Michael Kornakov/

Supervisory Patent Examiner, Art Unit 4151